

Amendments to the Claims:

None

Listing of Claims:

Claim 1 (original): An integrated circuit interconnect structure, comprising:

a low K dielectric layer with an upper surface formed over a semiconductor;

a first trench formed in said low K dielectric layer wherein said trench has sidewalls;

a first contiguous barrier layer formed to a thickness X_1 over said upper surface of said low k dielectric layer and formed to a thickness X_2 on said trench sidewalls wherein X_1 is greater than X_2 ; and

copper formed over said first contiguous barrier.

Claim 2 (original): The integrated circuit interconnect structure of claim 1 further comprising a second trench comprising sidewalls formed in said low K dielectric layer and separated from said first trench by a distance less than 160nm.

Claim 3 (original): The integrated circuit interconnect structure of claim 2 wherein said first contiguous barrier layer is formed to a thickness X_2 on said trench sidewalls of said second trench.

Claim 4 (original): The integrated circuit interconnect structure of claim 1 wherein the ratio X_1 to X_2 is greater than 3 to 2.

Claim 5 (original): The integrated circuit interconnect structure of claim 3 wherein the ratio X_1 to X_2 is greater than 3 to 2.

Claim 6 (original): The integrated circuit of claim 1 further comprising a second contiguous barrier layer formed over said first contiguous barrier layer and beneath said copper.

Claim 7 (original): A copper integrated circuit interconnect structure, comprising:

a low K dielectric layer with an upper surface formed over a semiconductor;

a plurality of trenches formed in said low K dielectric layer wherein said plurality of trenches has sidewalls;

a first contiguous barrier layer formed to a thickness X_1 over said upper surface of said low k dielectric layer and formed to a thickness X_2 over said sidewalls of said plurality of trenches wherein the ratio of X_1 to X_2 is greater than 3 to 2; and

copper formed over said first contiguous barrier.

Claim 8 (original): The integrated circuit interconnect structure of claim 7 wherein said plurality of trenches are separated from each other by a distance of less than 160nm.

Claim 9 (original): The integrated circuit interconnect structure of claim 7 further comprising a second contiguous barrier layer formed over said first contiguous barrier layer and beneath said copper.

Claim 10 (original): The interconnect structure of claim 7 wherein the dielectric constant of the low K dielectric layer is less than or equal to approximately 3.7.

Claim 11 (original): A method for forming a copper interconnect structure, comprising:

forming a low K dielectric layer with an upper surface over a semiconductor;

forming a plurality of trenches in said low K dielectric layer wherein said plurality of trenches has sidewalls;

forming a first contiguous barrier layer to a thickness X_1 over said upper surface of said low k dielectric layer and to a thickness X_2 over said sidewalls of said plurality of trenches wherein the ratio of X_1 to X_2 is greater than 3 to 2; and

forming copper over said first contiguous barrier.

Claim 12 (original): The method of claim 11 wherein said plurality of trenches are separated from each other by a distance of less than 160nm.

Claim 13 (original): The method of claim 12 further comprising forming a second contiguous barrier layer over said first contiguous barrier layer and beneath said copper.

Claim 14 (original): The method of claim 13 wherein the dielectric constant of the low K dielectric layer is less than or equal to approximately 3.7.

Claim 15 (original): A method for forming an integrated circuit copper interconnect structure, comprising:

forming a low K dielectric layer with a dielectric constant less than or equal to approximately 3.7 with an upper surface over a semiconductor;

forming a plurality of trenches separated by a distance of less than 160nm in said low K dielectric layer wherein said plurality of trenches has sidewalls;

forming a first contiguous barrier layer to a thickness X_1 over said upper surface of said low k dielectric layer and to a thickness X_2 over said sidewalls of said plurality of trenches wherein the ratio of X_1 to X_2 is greater than 3 to 2; and

forming copper over said first contiguous barrier.

Claim 16 (original): The method of claim 15 further comprising forming a second contiguous barrier layer over said first contiguous barrier layer and beneath said copper.